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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/806,955	03/23/2004	Shien-Yang Wu	TSM03-1037	2334
43859	7590	12/02/2004	EXAMINER	
SLATER & MATSIL, L.L.P. 17950 PRESTON ROAD, SUITE 1000 DALLAS, TX 75252			VU, HUNG K	
			ART UNIT	PAPER NUMBER
			2811	

DATE MAILED: 12/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/806,955

Applicant(s)

WU ET AL.

Examiner

Hung Vu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 11-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>03/23/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Invention of Group I, Claims 1-10 in the reply filed on 09/09/04 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Applicant's election without traverse of Invention of Group I, Claims 1-10 in the reply filed on 09/09/04 is acknowledged.

Claims 11-20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 09/09/04.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1 – 3, 5, 6 and 10 are rejected under 35 U.S.C. 102(a) as being anticipated by Ito et al. (PN 6,580,156).

Ito et al. discloses, as shown in Figures 1 – 8, an electrical fuse comprising:

a cathode doped (410A or 412A) with a first impurity of a first conductivity type (N);

an anode doped (412A or 410A) with a second impurity of a second conductivity type (P);

one or more links (414,514) electrically coupling the cathode and the anode, each link having a first portion and a second portion, the first portion being doped with the first impurity, the second portion being doped with the second impurity, one or more p-n junction diodes being formed at a junction between the first portion and the second portion;

a conductive layer (320) over the p-n junction diodes.

With regard to claim 2, Ito et al. discloses the first impurity is a p-type impurity and the second impurity is an n-type impurity.

With regard to claim 3, Ito et al. discloses the conductive layer is a silicide [Col. 6, lines 4 – 7].

With regard to claim 5, Bohr et al. discloses the conductive layer is a material selected from the group consisting essentially of titanium silicide, cobalt silicide, nickel silicide, platinum silicide, and a combination thereof [Col. 6, lines 4 – 7].

With regard to claim 6, Bohr et al. discloses the cathode, the anode, and the links comprise polysilicon [Col. 6, lines 8 – 11].

With regard to claim 8, Bohr et al. discloses the fuse further comprising one or more contacts electrically coupled to the cathode and one or more contacts electrically coupled to the anode.

With regard to claim 9, Bohr et al. discloses the fuse further comprising a first contact array comprising a plurality of contacts electrically coupled to the cathode, and further comprising a second contact array comprising a plurality of contacts electrically coupled to the anode.

With regard to claim 10, Bohr et al. discloses the cathode and the anode are symmetric.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 4 and 7 – 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al. (PN 6,580,156) in view of Bohr et al. (PN 5,708,291).

With regard to claim 4, Ito et al. discloses the claimed invention including the fuse as recited in the rejection above. Ito et al. does not disclose the conductive layer is less than 500 Å in thickness. However, Bohr et al. discloses the conductive layer is less than 500 Å in thickness [Col. 3, lines 25 – 26]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the conductive layer of Ito et al. having the desired thickness, such as taught by Bohr et al. in order to control the current flow through the fuse.

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With regard to claim 7, Ito et al. and Bohr et al. disclose the claimed invention including the fuse as recited in the rejection above. Ito et al. and Bohr et al. further disclose the cathode, the anode, and the links are 2500 Å in thickness. Ito et al. and Bohr et al. do not disclose the cathode, the anode, and the links are less than 2500 Å in thickness. Although Ito et al. and Bohr do not teach the thickness of the cathode, the anode, and the links, as that claimed by Applicants, however, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form the cathode, the anode, and the links having a desired thickness, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

With regard to claim 8, Ito et al. discloses the claimed invention including the fuse as recited in the rejection above. Ito et al. does not disclose the fuse further comprising one or more contacts electrically coupled to the cathode and one or more contacts electrically coupled to the anode. However, Bohr et al. discloses the fuse further comprising one or more contacts electrically coupled to the cathode and one or more contacts electrically coupled to the anode. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the fuse of Ito et al. further comprising one or more contacts electrically coupled to the cathode and one or more contacts electrically coupled to the anode, such as taught by Bohr et al. in order to increase the contact surface area and to reduce the contact resistivity.

With regard to claim 9, Ito et al. discloses the claimed invention including the fuse as recited in the rejection above. Ito et al. does not disclose the fuse further comprising a first contact array

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comprising a plurality of contacts electrically coupled to the cathode, and further comprising a second contact array comprising a plurality of contacts electrically coupled to the anode.

However, Bohr et al. discloses the fuse further comprising a first contact array comprising a plurality of contacts electrically coupled to the cathode, and further comprising a second contact array comprising a plurality of contacts electrically coupled to the anode. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the fuse of Ito et al. further comprising a first contact array comprising a plurality of contacts electrically coupled to the cathode, and further comprising a second contact array comprising a plurality of contacts electrically coupled to the anode, such as taught by Bohr et al. in order to increase the contact surface area and to reduce the contact resistivity.

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung K. Vu whose telephone number is (571) 272-1666. The examiner can normally be reached on Mon-Thurs 6:00-3:30, alternate Friday 7:00-3:30, Eastern Time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C. Lee can be reached on (571) 272-1732. The Central Fax Number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

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Vu

November 16, 2004

A handwritten signature in black ink, appearing to read "Hung Vu", written over a horizontal line.

Hung Vu

Patent Examiner